



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,610	11/10/2003	Roger W. Phillips	48930-01611	4705

34013 7590 06/03/2004
HOLME ROBERTS & OWEN, LLP
299 SOUTH MAIN
SUITE 1800
SALT LAKE CITY, UT 84111

EXAMINER

CHANG, AUDREY Y

ART UNIT PAPER NUMBER

2872

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/705,610

Applicant(s)

PHILLIPS ET AL.

Examiner

Audrey Y. Chang

Art Unit

2872

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/3/2004</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 1-12, 14-15 and 26-27 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "optical interference pattern comprises *microstructures* having dimensions ..." recited in claims 1-2, 14-15 and 26-27 is confusing and indefinite since it is not clear what is considered to be these "microstructures". It is not clear if these microstructures are referred to the *interference fringes* of the interference pattern or *sub-patterns* of the interference pattern. Clarifications are required. For the examination purpose, these microstructures will be treated as the *interference fringes* of the pattern.

Claims 3-12 inherit the rejection from their base claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-2, 5, 7-12, 13-15, 18, 20-24, 25-27, 30 and 32-36 are rejected under 35 U.S.C. 103(a)** as being unpatentable over the patent issued to Uyama et al (PN. 5,700,550),

Uyama et al teaches a *transparent hologram seal* that can be applied as a *security article*, wherein the hologram seal comprises a *transparent base layer* (2, Figure 1) serves as the transmissive

Art Unit: 2872

substrate having a first and a second surface, a *hologram forming layer* (4) having *hologram*, which essentially is *interference pattern*, recorded therein forming on one of the surface of the base or substrate and a *multilayered evaporation coating layer* (10). The evaporation coating layer (10) is comprised of *alternatively arranged high and low refractive index layers* such that it *changes color* as light either transmits or reflects through the layer when the viewing angle is changed. This multilayered evaporation layer serves as the *color shifting multilayer optical coating*, (please see Figure 1, columns 5-6).

This reference has met all the limitations of the claims with the exception that it teaches that the hologram layer is formed on a first surface of the base layer and the color shifting coating layer is formed on the hologram layer but it does not teach explicitly that the color shifting coating layer is formed on the second surface of the substrate that *opposites* to the first surface, (where hologram layer is formed). However the position of the color shifting coating layer with respect to the base layer **does not change** or **affect** the color shifting property of the layer. In particularly, Uyama et al teaches explicitly that the color shifting coating layer will behave the *same*, namely changes the color of appearance for either transmitted or reflected light ray when the viewing angle is changed, (please see column 6, lines 25-29). To place the color shifting coating layer at substrate surface opposite to the hologram-forming layer or to place it at the same side and on the hologram forming layer will not affect the color shifting function of the coating layer to the hologram seal. Such modification would therefore have been obvious matters of design choices to one skilled in the art since it really functions the same. Uyama et al further does teach that typically a hologram layer is of polymer material with low refractive index, (please see column 6, lines 21-24). One skilled in the art then, besides the design choices, would be motivated to separate the hologram forming layer from the multilayered color shifting layer by a substrate to avoid possible interference between the hologram layer and the color shifting layer and therefore avoid noise.

With regard to the feature concerning the *dimensions* of the microstructures of the hologram pattern, (with regard to claims 1-2, 14-15, and 26-27), this reference does not teach explicitly about the

dimension of the interference fringes or microstructures. However this feature must be *inherently* met by the hologram disclosed since in order for the hologram or the interference fringes to allow incident light interferes to each other, the fringe size must be compatible to the wavelength of the incident light, that is to say the fringe size must be multiple of the wavelength. Uyama teaches that the hologram may be operated in visible light range (i.e. wavelength ranges 400 nm to 700 nm or 0.4 microns to 0.7 microns). This means the fringe size must be multiple of such which therefore certainly include the size in the range between 0.1 to 1 microns or 0.1 to 10 microns.

With regard to claims 5, 18 and 30, Uyama et al teaches that the color shifting layer (10) has multilayered structure with alternative arranged high-refractive index *dielectric* layers (6) and low-refractive index *dielectric* layers (8), (please see column 5, lines 62-67).

With regard to claims 7, 13 and 32, Uyama et al teaches that the hologram seal may further include a *print layer* (28) with desired character, numerical or pattern printed into the hologram seal, (please see columns 17-18). This reference teaches that the print layer (28) may be formed by *conventionally known printing method* or coating method such as gravure printing method, (i.e. some kind of etching method). Although it does not teach explicitly that laser ablation method is used, however since laser ablation is conventionally known laser etching method, this product-by-process limitation therefore *does not* differentiate the printed image, (i.e. the final product) from the prior art print layer. It would have been obvious to one skilled in the art to use conventional laser ablation method as the means to print the characters or pattern into the hologram seal to add additional information to the seal, since laser ablation method is commonly available. Although this reference does not teach explicitly that the print layer is in the color shifting coating however the location of the print layer does not affect the function of this print layer, namely to add additional information to the hologram seal, such modification is considered to be obvious matters of design choice to one skilled in the art. (Please see MPEP 2173.05(p) for product-by-process limitations).

With regard to claims 8, 10, 20, 22, 25, and 34, Uyama et al teaches to use *adhesive layer* (16) to adhere the hologram seal to intended object (20), (Figures 1, 10 and 9B), but it does not teach explicitly to use an adhesive layer to adhere the color shifting layer to the substrate. However using adhesive layer to increase the adhesion of the layer to another layer is rather well known practice in the art such modification would have been obvious to one skilled in the art.

With regard to claims 9, 21, and 33, Uyama et al teaches that the hologram seal may be applied as security article for proving authenticity of an article however it does not teach explicitly that the hologram seal is of a thread form. However it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Madham*, 2 USPQ2d 1647 (1987).

With regard to claims 11-12, 23-24 and 35-36, Uyama et al teaches that the hologram or the interference pattern may either be formed in a hologram forming layer (4) and secured to the transmissive substrate (i.e. base layer) or the hologram can be formed on the substrate by making the hologram forming layer and the substrate-base layer a single layer, (please see column 5, lines 59-61).

5. Claims 3-4, 16-17 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Uyama et al as applied to claims 1, 13 and 25 above, and further in view of the patent issued to Coombs et al (PN. 5,214,530).

The hologram seal having hologram forming layer and color shifting coating layer taught by Uyama et al as described for claims 1, 13 and 25 above has met all the limitations of the claims. This reference teaches that the color shifting coating layer is a multilayer interference filter with alternatively arranged high and low refractive index layers but it does not teach explicitly that it can also assume the structure of having either absorber layer, dielectric layer and reflector layer or having absorber layer, dielectric layer and absorber layer. Coombs et al in the same field of endeavor teaches an optically

Art Unit: 2872

variable interference device (29) that includes absorber layer formed on a substrate, a dielectric layer overlaying the absorber and a reflector layer overlaying the dielectric layer and it also includes an absorber layer formed on the substrate, a dielectric layer overlaying the absorber layer and an absorber layer overlaying the dielectric layer, (please see Figures 1 and 9). It would then have been obvious to one skilled in the art to apply the teachings of Coombs et al to modify the interference color shifting coating layer of Uyama et al to make it to with different designs for the benefit of providing different transmission/reflection properties for the coating layer.

6. **Claims 6, 19, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Uyama et al as applied to claims 1, 13 and 25 above, and further in view of the patent issued to Phillips et al (PN. 5,424,119).**

The hologram seal having hologram forming layer and color shifting coating layer taught by Uyama et al as described for claims 1, 13 and 25 above has met all the limitations of the claims. This reference teaches that the color shifting coating layer is a multilayer interference filter with alternatively arranged high and low refractive index layers but it does not teach explicitly that it can also assume the structure of having a plurality of multilayer interference thin film flaks dispersed in a polymeric material. Phillips et al in the same field of endeavor teaches an interference filter that is comprised of a plurality of multilayer interference thin film flaks dispersed in a polymeric layer, (please see Figure 5, and the abstract). It would have been obvious to one skilled in the art to apply the teachings of Phillips et al to modify the interference color shifting coating layer of Uyama et al to make it with dispersed multilayer interference filter flakes for the benefit of providing different color effect for the hologram seal.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759

Art Unit: 2872

F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. **Claims 1-5, 13-18, and 25-30** are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9, 53 and 57 (original numbering of the claim) of U.S. Patent No. (Application number 09/351,102, since the patent number has not been assigned). Although the conflicting claims are not identical, they are not patentably distinct from each other because they **both** are drawn to a security device having interference pattern (grating is a type of interference pattern) forming on the first surface of a transparent substrate and a color shifting multilayer optical film forming on the second surface of the substrate.

9. **Claims 1-5, 13-18, and 25-30** are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 10/688,357. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both are drawn to a security device having interference pattern forming on the first surface of a transparent substrate and a color shifting multilayer optical film forming on the second surface of the substrate.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. **Claims 1-5, 13-18, and 25-30** provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of copending Application No.

Art Unit: 2872

10/706,142. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both are drawn to a security device having interference pattern forming on the first surface of a transparent substrate and a color shifting multilayer optical film forming on the second surface of the substrate.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

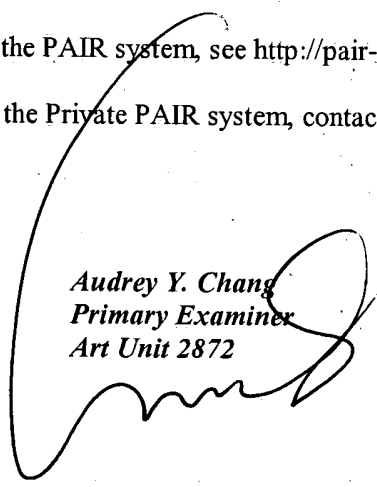
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Audrey Y. Chang
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.